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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/835,491	04/17/2001	Kinya Ozawa	109137	5417
25944	7590	02/06/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			DUONG, THOI V	
			ART UNIT	PAPER NUMBER
			2871	
DATE MAILED: 02/06/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

<b>Office Action Summary</b>	<b>Application No.</b> 09/835,491	<b>Applicant(s)</b> OZAWA ET AL.	
	<b>Examiner</b> Thoi V. Duong	<b>Art Unit</b> 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 10 and 11 ~~is~~ are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10 and 11 ~~is~~ are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This office action is in response to the Amendment filed January 19, 2006.

Accordingly, claim 11 was amended, and claims 1-9 were cancelled. Currently, claims 10 and 11 are pending in this application.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 10 and 11 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bos et al. (Bos, USPN 6,141,074) in view of Zhang et al. (Zhang, USPN 6,515,725 B1) and Park (USPN 6,160,535).

As shown in Fig. 1, Bos discloses a pixel area 10 of an active matrix liquid crystal display (LCD) device (col. 1, lines 15-18), comprising:

- a first substrate 14 having a surface;
- a second substrate 16 having a surface that faces the surface of the first substrate;
- liquid crystal 12 disposed between the first and second substrates; and

alignment films (not shown) disposed between the liquid crystal layer and the surfaces of the first and second substrates (col. 4, lines 1-65) inducing a pretilt angle in the liquid crystal of 20° to 30° (col. 6, lines 33-37);

Although Bos does not disclose the structure of the LCD device in details, it would have been obvious to one having ordinary skill in the art that the active matrix LCD device of Bos comprises a plurality of scanning lines; a plurality of data lines; pixel areas defined by the scanning lines and the data lines; a switching element provided in each pixel area; and a pixel electrode provided in each pixel area.

Bos discloses a LCD device that is basically the same as that recited in claim 10 except for a space dimension between the pixel electrodes, and a driving method for the adjacent pixels.

At first, as shown in Figs. 4A and 4B, Zhang discloses a liquid crystal device, comprising:

switching elements TFT provided at positions corresponding to intersections between scanning lines 105 and data lines 112;

pixel electrodes 115, each connected to one of the switching elements, adjacent pixel electrodes being separate from each other by a space of Px and Py (Applicant's L) in the X and Y directions, respectively, from each other, wherein Px and Py are set in in the range of from about 1 to 3 micrometers (col. 7, lines 19-26).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the LCD of Bos with the teaching of Zhang by having adjacent pixel electrodes being separate from each other by a space of

approximately 1 micrometer so as to provide a maximum aperture for the display (col. 7, lines 22-25).

Further, as shown in Figs. 1B-1C, Park discloses a conventional driving technique involving applying voltages having different polarities to pixels that are adjacent to each other by driving alternating pixel elements with negative and positive voltages to prevent the display from reducing sensitivity and brightness (col. 1, lines 51-64).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the liquid crystal device of Bos with the teaching of Park by applying voltages having different polarities to adjacent pixels so as to improve display characteristics (col. 2, lines 10-12).

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kadota et al. (Kadota, USPN 5,818,550) in view of Bos et al. (Bos, USPN 6,141,074), Zhang et al. (Zhang, USPN 6,757,032 B1), and Park (USPN 6,160,535).

As shown in Fig. 1, Kadota discloses a liquid crystal device, comprising:

first and second substrates 12 and O, the first substrate 12 having a surface proximate the second substrate O, the second substrate O being a surface proximate the first substrate 12;

an alignment film disposed at the surface of the second substrates O (col. 4, lines 37-40),

liquid crystal 13 disposed between the first and second substrates;

a plurality of scanning lines 3;

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a plurality of data lines (col. 4, lines 1-6);  
pixel areas defined by the scanning lines and the data lines;  
a switching element TFT provided in each pixel area;  
a (first) light shielding film 8 (black mask) disposed between the first substrate 12 and the switching element TFT at the region corresponding to the switching element TFT but not at the region corresponding to between adjacent pixel areas (Fig. 1 and col. 4, lines 4-15); and

a pixel electrode 1 provided in each pixel area (col. 4, lines 4-15).

Kadota discloses a LCD device that is basically the same as that recited in claim 11 except for a pretilt angle due to alignment films being 20 degrees to 30 degrees, a relationship between a thickness of the liquid crystal and a space between the pixel electrodes, and a driving method for the adjacent pixels.

At first, as shown in Figs. 1 and 2A, Bos discloses a pixel area 10 of a liquid crystal display (LCD) device, comprising a pretilt angle of  $0.5^{\circ}$  to  $30^{\circ}$  due to the alignment films for liquid crystal having positive dielectric anisotropy (col. 6, lines 3-37 and col. 7, lines 22-30) so as to prevent display defects caused by disclination formed in spaces between body portions of the pixel electrodes 10 (col. 2, lines 17-23 and col. 13, line 62 through col. 14, lines 4).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the LCD of Kadota with the teaching of Bos by having a pretilt angle due to the alignment films being  $20^{\circ}$  to  $30^{\circ}$  in order to prevent

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display defects caused disclinations due to reverse twist and produce a wide viewing angle (col. 2, lines 13-23 and col. 5, lines 18-22).

Further, as shown in Figs. 4A and 4B, Zhang discloses a liquid crystal device, comprising pixel electrodes 115, each connected to one of the switching elements TFT, the adjacent pixel electrodes being separate from each other by a space of  $P_x$  and  $P_y$  (Applicant's  $L$ ) in the X and Y directions, respectively, from each other, wherein  $P_x$  and  $P_y$  are set in in the range of from about 1 to 3 micrometers (col. 7, lines 19-26).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the LCD of Kadota with the teaching of Zhang by having the adjacent pixel electrodes being separate from each other by a space of approximately 1 micrometer so as to provide a maximum aperture for the display (col. 7, lines 22-25).

Zhang also discloses that a cell gap  $d$  (or Applicant's thickness of the liquid crystal disposed between the first and second substrates) of the liquid crystal display is as small as in a range of from about 2 to 4 micrometers (col. 2, lines 23-24).

Accordingly, if  $d = 2$  and  $L = 1$ , a ratio of  $d/L = 2$ , which satisfies the claimed ratio of at least 1.

Finally, Park discloses a conventional driving technique involving applying voltages having different polarities to pixels that are adjacent to each other by driving alternating pixel elements with negative and positive voltages as shown in Figs. 1B-1C to prevent the display from reducing sensitivity and brightness (col. 1, lines 51-64).

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Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the liquid crystal device of Kadota with the teaching of Park by applying voltages having different polarities to adjacent pixels so as to improve display characteristics (col. 2, lines 10-12).

**Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong



02/02/2006

  
ANDREW SCHECHTER  
PRIMARY EXAMINER